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Cover illustrations courtesy The Bettmann Archive, Inc.

Dear Sprague Employe;

Christmas and the approach of a new year are traditionally times for counting our blessings, for assessing our strengths and weaknesses, and for charting future plans.

The year 1964 for us at Sprague Electric has been a rather hectic one, not without rewards, but characterized by cost and price pressures. Summing up, it looks now as if our total sales for the year will be modestly higher than the $83 million we registered in 1963.

Our net profit, however, will not reflect this rise in sales, due primarily to the continued price squeeze on our products, which we have been so far unable to fully offset with lower costs.

Employment levels at many Company operations increased modestly during the year, and we were able to provide stability of work during the greater part of 1964 at virtually all locations.

Our highly intensive efforts in research and engineering provided us with some significant new products in the semiconductor field, and we count on this newer segment of our business to play a major role in the future growth of the Company. During 1965, we plan to open a new plant in a new location to capitalize on our opportunity for growth in this very important product area.

All of us have worked hard this year under competitive conditions which have been very difficult, and 1965, like 1964, will probably be a rugged one. We must tackle the new year with energy and high resolve and do our utmost to further reduce costs, improve quality, and furnish quick delivery of our products.

I want to thank you for your loyal efforts during 1964, and ask that you give your very best to our team in 1965. You have my sincere wishes that you and your families will enjoy a happy holiday season.

Cordially,

Robert C. Sprague

Christmas 1964

THE RESISTOR DIVISION

Resistor production, one of Sprague Electric's oldest product lines is now located at the Nashua, New Hampshire plant under the direction of William L. Dudley, Division Manager. Manufacture of these important electrical devices began in North Adams in 1938 when the Company acquired a unique process for a ceramic-insulated wire which gave us ability to make high temperature resistors. The Koolohm type resistor was the first we made, and this resistor is still manufactured in fairly large quantities. During World War II, we shipped very large quantities of the Koolohm since it was by far the lowest cost resistor which could meet the requirements necessary. We also developed the so-called "Navy" type resistor which consists of a glass tube with ferrules on either end. These were the first resistors that would meet the Navy's immersion test. For airborne radar, during World War II, we manufactured small bobbin resistors. All this work was done at Brown Street in North Adams.

In 1950, the resistor manufacturing was moved to the Kingston Plant and stayed there until that plant was closed in 1955. Then resistors were moved to their present home in Nashua, New Hampshire. In 1961, it was decided the resistors were enough different from other components in the Sprague Electric Company to justify forming a separate division to handle their sales and manufacture. As with all Sprague Electric divisions, the Resistor Division handles its own sales, engineering, and quality assurance and reliability, as well as manufacturing. Key personnel, in addition to Mr. Dudley, include Stanley O. Dorst who is in charge of engineering, Robert T. Means who serves as Market Manager, Raymond J. Calvi, Heading QAR activities; and Fred R. Powers and Maurice L. Arel who are in charge of wirewound and film manufacturing, respectively. Factory engineering and methods is under the supervision of Lars I. Ivarson. D'Arcy A. Young, Jr., is consultant to the Division and has headed the engineering development efforts for the past three years.

Resistors are the most used electrical component. Over three billion resistors of all types will be manufactured and sold in the United States this year. The majority are carbon composition types which are made by compressing granulated carbon and inserting leads. These are low priced and are turned out on automatic equipment by the millions.

The Sprague Resistor Division has chosen to participate in a different segment of the resistor market where prices are higher and where technical requirements are more demanding. This gives us a better chance to apply Sprague Electric engineering, quality control, and manufacturing team concepts to produce a better product.

PRODUCTS

Two varieties are produced by the Resistor Division, wirewound and film types.

The wirewound is just what the name implies. Resistance wire is wound around a core of some sort and given a protective coating. Simple as this sounds, the ways of doing it are almost limitless. We wind resistance wires varying from a strap $\frac{1}{8}$" wide for very low resistances to virtually invisible threads one-sixth the diameter of a human hair. The latter are used where maximum resistance must be squeezed into the smallest possible volume. Naturally, the operator skills and equipment required for these operations are unique.

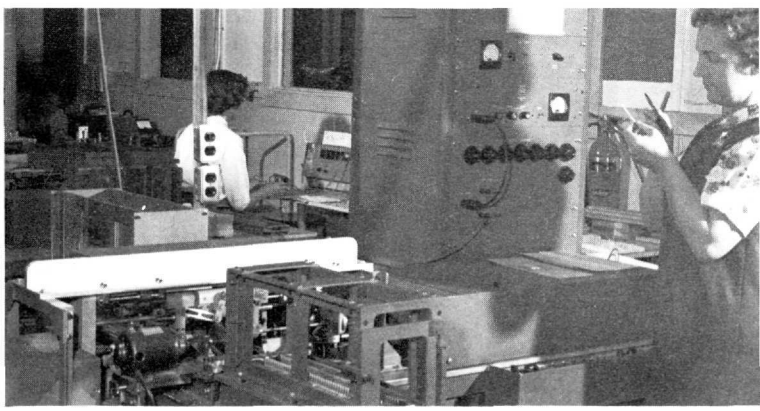
As with most electronic components, the precision of resistance is important. Costs of manufacture and prices rise as the customer demands more precise resistances. For most wirewounds, $\pm 5\%$ is the usual resistance tolerance. However, on our bobbin type resistors, we can provide resistances which are accurate to $\pm .05\%$. These are mostly used on electronic measuring equipment where great accuracy is required. Some specialty companies can make resistors accurate to $\pm .005\%$, but we do not try to serve this limited market.

There are many possible types of protective coatings for resistors. In wirewounds, the type of protective coating chosen is determined by the heat which the resistor must stand and by its ability to keep moisture out. As all component manufacturers know, moisture will cause corrosion and it doesn't take much to cause the very fine wires to fail. As for heat, wirewounds are primarily used where relatively large amounts of electrical power must be regulated and temperatures as high as 350°C may occur in spots.

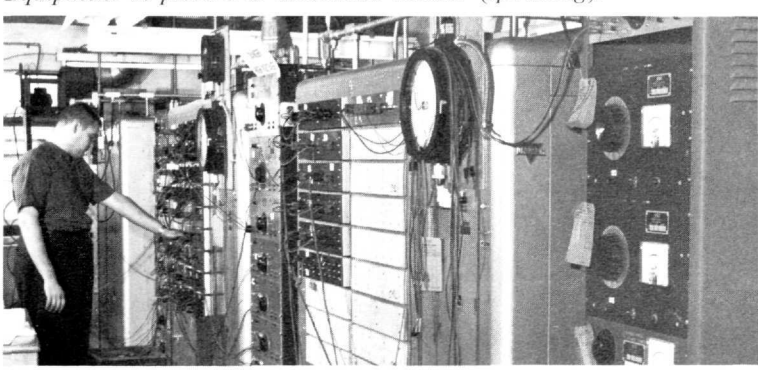
The protective coatings we have chosen are several. Our most popular type is the vitreous enamel in which a tough, glass-like material is fixed onto the resistor at very high temperatures. Other coatings are a silicone material, ceramic shells, and glass tubes. The precision bobbin types do not see such extreme temperatures and are cast in epoxy.

The film type resistors are a comparatively recent development, and this technology is still advancing. As the name implies, we evaporate a very, very thin film of metal onto a ceramic core. In order to get the desired resistance, a spiral path is cut through the film much like the stripes on a candy cane. Where the film is cut away, no electricity can flow. Therefore, the current must follow the metallic path which goes around and around the core. The length of this path and the thickness of the film determine the resistance of the finished resistor.

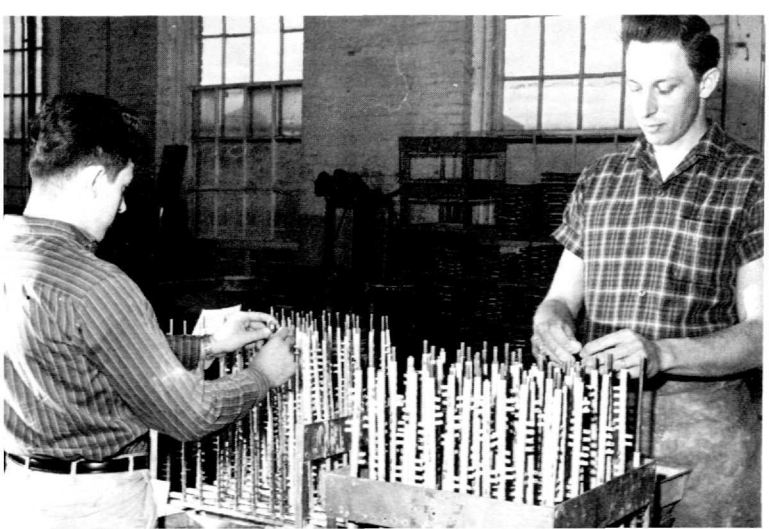
Check Inspector, Kay Stockley, inspecting resistor high reliability package - Department 466.



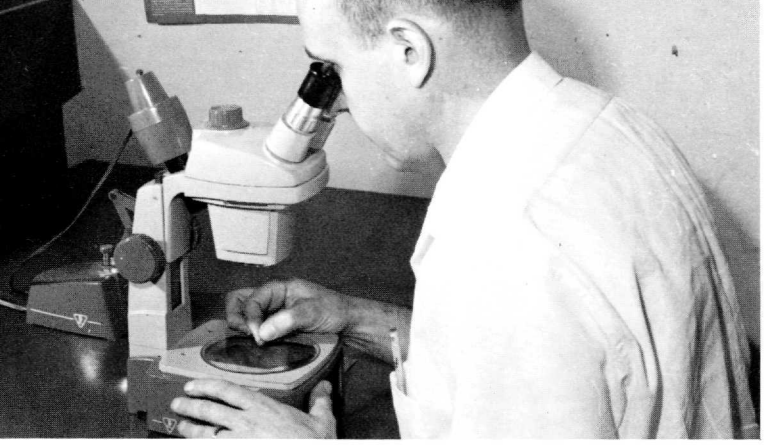
Ann Simard, Department 760, inspecting helixed resistor. Equipment in picture is automatic helixer (spiralling).



Robert Roy, Department 463, checking ovens where high reliability resistors are stabilized by operating them at maximum rated power and temperature.



Arthur Belair and Conrad Deschenes, Department 761, loading lug type Vitreous Enamel resistors prior to application of enamel.



Gene Yarotsky, Resistor Engineer, checking 1/20 watt resistor.

Pauline Akey, Department 761, operating automatic lead attachment equipment.

Roger Landry, Department 760, operating automatic resistance reading and recording equipment.

Maureen Markaverich, Department 761, feeding Vitreous Enamel resistors into reel packing equipment. Note resistors on reel and section of taped resistors lying on equipment.

Film resistors are mostly used in low power electronic circuitry. Therefore, we can make very small low power resistors. Our smallest one is only about 1/16″ in diameter and 1/8″ long. It is rated at only 1/20th of a watt. Normally, these resistors are supplied to a precision of ±1%, but we do sell a lot of them with a tolerance of only ±.1%.

HIGH RELIABILITY

We have high reliability resistor lines in both wirewound and film types, although the film business is by far the larger. We have been a major supplier on the Polaris Program for some time and have recently been approved for the Minuteman Missile. We also participate in a number of other missile, satellite and space programs such as Apollo, Pershing, Gemini, Lance, Sprint and several secret programs. Further, we are approved as a source for electronic equipment for the TFX fighter plane project.

FUTURE PLANS

At present, we are in the midst of an expansion program which should increase our shipping capabilities by about 50% in 1965. Competition in the resistor industry is intense, partly because of an increase in facilities by a number of suppliers and partly because of a dearth of large new programs, using high reliability resistors. The ultimate effect of microelectronics raises questions about the need for discrete resistors, also.

We think that Sprague is in a good position in spite of the disturbing factors noted above. We have not degraded the quality of our resistors to cut costs and, therefore, have been able to attract the better customers who are willing to pay more for a superior resistor. Microelectronics will affect wirewounds in that less power is needed to perform a given job. On the other hand, we think that incressed electronics usage will more than make up the difference.

Film resistors are relatively high-priced, are used where the circuit designer needs their particular characteristics of precision and stability. Thus far, microelectronics producers have not been able to make a similar resistor at a competitive price. Therefore, in the next few years, we look for continued high resistor usage of the types we manufacture.

We are not waiting complacently, however. We have development work in progress to keep us in the forefront of resistor technology. Our aim is to provide a product which is unique in some aspect and for which there is an immediate or projected need.

PROGRAMMED LEARNING

A powerful new Educational Technique of self instruction providing uniformly high and measurable performance in less time and at low cost.

Much has been written in magazines and newspapers during the last few years about programmed learning, programmed teaching, programmed instruction and teaching machines. All of these terms add up to the same thing – the newest and most revolutionary teaching technique in modern education. For clarity, let's refer to them collectively as Programmed Learning and define the methodology as a combination of the functions of textbooks, exercises, drills, problems, recitations and examinations, which can be used by the learner, alone, entirely at his own pace, without need for classroom or teacher, with an extremely low error rate and at very low comparative cost.

Programmed Learning is based on the theories of learning and behavioral science, and it is currently receiving ever-increasing interest and use in industry, government and school systems.

The basic principles and characteristics of the new instructional technique can be briefly summarized:

1. The instructional material is broken into small informational steps which are presented to the learner in a logically ordered sequence of verbal or symbolic units, so structured as to permit few mistakes during the learning process.

2. The sequence of presentation of units of instruction is arranged in cumulative order of progressive difficulty, each step drawing on information previously presented, and preparing the learner for the steps to follow. At discreet stages in the learning process the student is tested on his subject knowledge at that point in the program.

3. The learner is required to actively respond, either verbally or in writing, at each instructional step, and is provided with immediate knowledge of the adequacy of his response, commonly called immediate reinforcement.

4. The learner is permitted to proceed at his own pace throughout the learning process. He is not merely a passive recorder of information but must actively exercise each bit of new knowledge as he learns.

What does this mean to you? Those employes who desire to extend their knowledge but who, for many reasons, cannot attend regularly scheduled classes may now do so through the Company's "Programmed Instruction Lending Library" operated by the Corporate Training Department. Over the past year we have investigated many programmed texts and have purchased those most relevant to our needs. The study time required ranges from as little as one hour for "Introduction to Probability" to three hundred hours for "Principles of Chemistry," a first year college program.

A directory of programs, now available through your foreman or department head, lists the subjects available, length of average study time and the general level of instruction. Texts may be borrowed, free of charge, by contacting your local Industrial Relations Office at branch operations and the Corporate Training Department in North Adams.

Subject areas now available

Transistors
Logarithms
Trigonometry
Blueprint Reading
PERT/CPM
Punctuation
Pipefitting
Plain Bearings
Basic Electricity
Basic Electronics
Basic Transistors
Chemistry
Supply & Demand

Adventures in Algebra
Groups & Fields
Introduction to Genetics
Statistical Concepts
Computing Square Roots
Effective Letters
Spelling Improvement
Arithmetic of Computers
The Accounting Process
Basic Slide Rule Operation
Introduction to Probability
Office Work Simplification
Sets, Relations & Functions
Free Enterprise System

Fundamentals of Algebra I & II
Introduction to Boolan Algebra & Logic Design
Introduction to Binary Arithmetic
Theory of Income Determination
Reading Engineering Drawings
Understanding Public Relations
Methods Improvement & Work Controls
Improving Written Communications
Steno-Speed, An ABC Shorthand
The Secretary, Jill-of-all-Trades
Measurements for Installation and Construction Skills
Fundamentals of Sheet Metal Layout
Pressure and Its Measurement
Principles of Positive Displacement Pumps

VALUE ENGINEERING -

A new approach to Cost Reduction

At Concord, two study groups were photographed as they prepared their final presentations.

Value Engineering is a relatively new term, but one that is being heard with increasing frequency in regard to a wide variety of manufacturing techniques. It is not merely cost reduction but, more precisely, an organized, systematic approach to reducing the cost of a manufacturing function without impairing the quality of the product.

The Department of Defense now insists on value engineering studies on products made for their various projects, and the governmental interest has encouraged many companies to investigate the value of the same concept for non-government orders and products.

At Sprague Electric our first Value Engineering project began in North Adams early last spring under the direction of Donald Meiklejohn, Department Head of Methods, assisted by Louis Scalise and Joseph Moresi, also of Methods. The 30-hour seminar was attended by a total of 32 employes. Four major areas were represented: Engineering, Production, Purchasing and Methods. The group was divided into eight sections, with a representative from each area included on the team. Each team was assigned a particular product for study for the seven week period, and products selected included some old, established units which had been manufactured by Sprague Elecric for many years, and some relatively new lines.

Contrary to previous cost reduction approaches, the new groups broke the unit down completely and studied each step in production, the method by which the work was done, and the materials used. At the end of the study, two presentations were made: one for immediate change, and a second for long range changes. Plans were completely detailed and included, in some instances, different materials and elimination of some present steps in manufacturing. In all cases the cost of materials was considered and suggested changes for lower cost were verified by the team member from the Purchasing Department. Also included in the final report was the projected cost of conversion to the new method. Some of the anticipated savings were spectacular, and every product studied was found to have areas where improvements could be made. The majority of the value engineering work was after regular work hours and during the evening.

FOLLOW-UP IMPORTANT

Robert C. Sprague, Chairman of the Board and Chief Executive Officer, and Ernest L. Ward, President, were both enthusiastic with the results obtained by the first Value Engineering groups and stated that it was one of the most productive studies in cost reduction which had ever been held within the Company. They both, however, stressed the need for follow-through on the presentations. At the present time better than one half of the first group's suggestions have been implemented.

Value Engineering is not merely a project for the Methods Department. An all-out effort must also be made by Engineering, Production, QAR and Purchasing for the whole program to be successful.

PROGRAMS AT BRANCH PLANTS

The first Value Engineering program outside North Adams was completed at Concord on November 18. The meetings held there were attended by teams from Nashua, Plymouth, and Barre as well as Concord. The seminars were conducted by Donald Meiklejohn with the assistance of Louis Scalise. William Karp, of Methods, and Rene Cote of Engineering also aided in the program.

Early in December a seminar was started for the Ashe County, North Carolina Plant. Mr. Meiklejohn conducted a concentrated four day program to instruct the participants in the Value Engineering technique and the follow up and presentations will take place early next year.

During the next few months programs will be conducted at all branch plants and it is anticipated that every product line manufactured by Sprague Electric will be value engineered in the months to come.

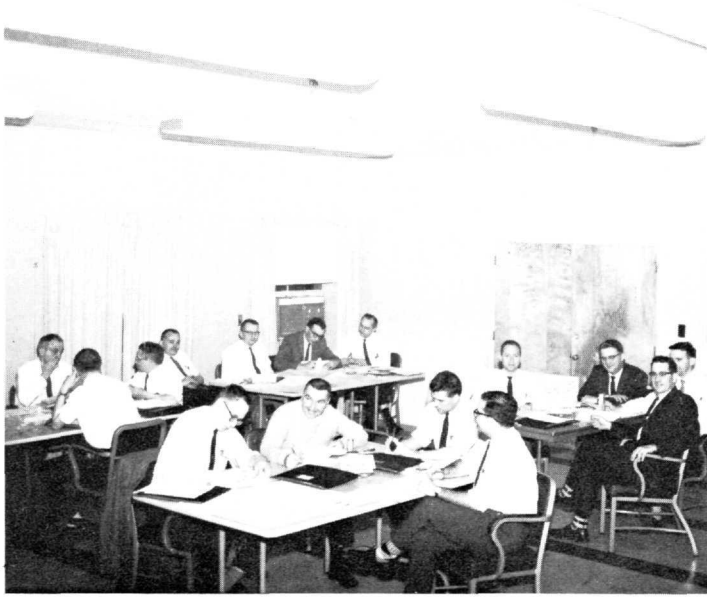
SECOND SEMINAR HELD IN NORTH ADAMS

In North Adams the second seminar was concluded in November and there are presently some 30 Value Engineering teams continuing their work on individual assignments. The seminars are valuable for training employes in the value engineering technique and savings are also obtained during the training periods; but the prime value to the Company will be realized as the ideas are implemented into production and followed through for additional refinement in the manufacturing process.

You will be hearing a great deal about Value Engineering in the future. It is one of the important ways in which Sprague Electric is meeting the competition of price reduction in the electronics' market.

In North Adams, members of the 2nd Value Engineering Seminar prepared to make their presentations on suggested cost reductions.

Value Engineering was a new idea at Sprague Electric as these groups studied their assignments during the first session.



SPRAGUE®
THE MARK OF RELIABILITY

UNEMPLOYMENT COMPENSATION

Unemployment compensation, or payment received while temporarily out of work, is an accepted fact in industry today, but less than 30 years ago such protection was available in only a few isolated areas.

In August 1938 the Social Security Act was signed into law and included the provisions for the present system of unemployment insurance. The Act provided that each individual state legislate in regard to the kinds of employment covered, the amount of benefits, the number of weeks paid, etc. It also established a federal fund to provide money to pay the administrative costs at the state level.

COST WHOLLY FINANCED BY EMPLOYER

The Federal Government taxes each employer to provide a fund from which each state is reimbursed for the administrative costs of providing unemployment insurance. Provisions vary

In Massachusetts, employes are given the form shown below on their last day of work.

THE COMMONWEALTH OF MASSACHUSETTS
DIVISION OF EMPLOYMENT SECURITY

SEPARATION NOTICE

TO THE EMPLOYER

You are required under the Massachusetts Employment Security Law to give a copy of this form to EACH of your employees whenever he is separated from his work, permanently or temporarily, for an expected duration of seven or more days.
GIVE THIS FORM TO EACH SUCH EMPLOYEE ON (OR JUST BEFORE) HIS LAST WORK-DAY.

Employer Name and Address at Which Payroll Records are Maintained →

SPRAGUE ELECTRIC CO.
87 MARSHALL STREET
NORTH ADAMS, MASS.

#68833

← Include Mass. Employer Number in Space at the left.

TO THE EMPLOYEE - If you intend to claim Unemployment Benefits:

(1) Complete this form by answering the questions which will be found on the other side.
(2) Take this form to the Local Office of the Division of Employment Security on *YOUR REPORTING DAY*. If you do not know your reporting day you can find it by checking the *LAST FIGURE* of your Social Security Account Number against the following schedule.

If your Social Security Number ends in:	Your reporting time is:	If your Social Security Number ends in:	Your reporting time is:
0	Monday Morning	5	Wednesday Afternoon
1	Monday Afternoon	6	Thursday Morning
2	Tuesday Morning	7	Thursday Afternoon
3	Tuesday Afternoon	8	Friday Morning
4	Wednesday Morning	9	Friday Afternoon

EXAMPLE: A claimant with the social security number 024-08-4465 would report Wednesday afternoon because the last figure is "5".

CIR 141 Rev. 9-61 10M
Form 590-A Rev. 12-60-1,000M-3-61-930235

from state to state (according to the laws passed by the individual state) but all are paid by a tax on *employer's* payrolls. The *employe contributes nothing* to the Unemployment Insurance program. The total cost, in all states, is paid by the employer.

The Social Security Act of 1935 had the following provisions:

1. The Act made it possible for employers in all States to be on the same footing as far as the costs of unemployment compensation are concerned. It levied a tax on employer's payrolls in all States and then allowed the employers credit for contributions to a state fund;

2. The Act authorized grants of money to the State to meet proper costs of administering the State's unemployment compensation law;

3. The Act protected the State unemployment compensation funds by bringing them all together in the U. S. Treasury; and

4. It protected the workers by providing against denial of benefits to a worker who refuses to accept a job under certain conditions where labor disputes or labor standards are involved.

WISCONSIN PASSED FIRST STATE UNEMPLOYMENT INSURANCE LAW

The first state in the country to write an unemployment insurance code on its statute books was Wisconsin. On January 28, 1932, the governor signed an act setting up an insurance fund, based *entirely upon employer* contributions, for the purpose of rendering financial aid to unemployed persons.

The Wisconsin insurance act excluded farm laborers, domestic servants, public officers, schoolteachers, interstate railroad employes, and anyone unable or unwilling to work normal full time.

EUROPEAN COUNTRIES HAD UNEMPLOYMENT INSURANCE BEFORE THE UNITED STATES

In Europe unemployment insurance was in effect in several countries before World War I. The Ghent system of unemployment insurance, which was organized in 1900, was a system of liberal subsidies to unions which gave unemployment benefits. Before the war, municipalities in Belgium, France, Germany and Holland adapted the Ghent system. France gave small aid to unemployment associations; Norway and Denmark had national systems; and Great Britain had established compulsory insurance.

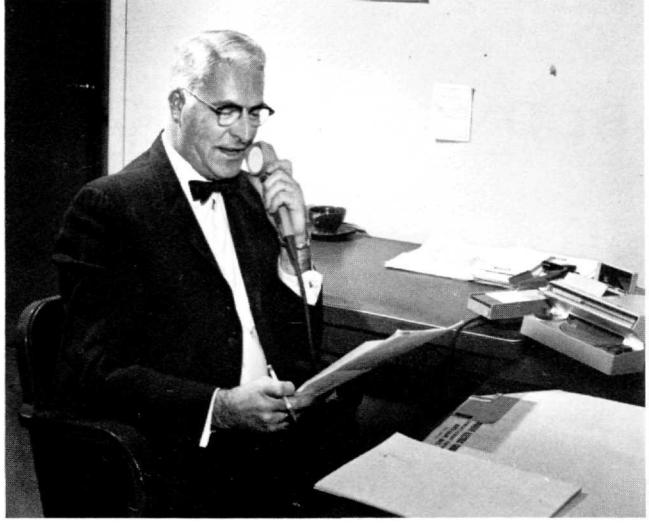
EUROPEAN PLANS REQUIRE *EMPLOYE* CONTRIBUTIONS

Great Britain supports her unemployment by compulsory insurance to which employes, employers and the National Exchequer contribute. As inaugurated in 1911, the unemployment insurance fund was established by *equal* and *joint* contributions of employers and employes. The National Exchequer was empowered to make loans to cover the demands on the fund when its resources were insufficient. Up to 1924 the fund was solvent, but beginning in 1925, its obligations to the National Exchequer mounted until, in September, 1931, the indebtedness of the fund amounted to about $490,000,000. In Great Britain unemployment insurance is combined with an outright relief program called the "dole".

Under the German system insurance and outright relief are kept distinct. Only the workers and the employers pay into the insurance fund. When the unemployed have exhausted their insurance benefits, they may receive "emergency relief" financed by the state and communes. In Italy compulsory unemployment insurance was established by decree in 1919. Persons of both sexes between the ages of 15 and 65 are required to pay into the fund, with the exception of certain classes of public and private employes. The employers must contribute to the fund equally with the employes. No contribution is made by the government, provinces or municipalities.

Switzerland's unemployment systems date from 1798 when the Basel authorities decided that the owners of textile establishments should deduct 2 percent of the wages of their employes for the creation of an unemployment-insurance fund. By the federal act of 1924 a national subsidy is provided of from 30 to 40 percent of the benefit expenditures of and recognized public fund set up by cantons and municipalities, worker's associations, or joint funds created by employers and employes.

Unemployment compensation in the United States, while it varies in some respects from state to state, is a tremendous benefit to employes who are temporarily out of work. In no other country in the world are working people so well protected through employer contributions and at no personal cost.



James C. P. Long, Commercial Manager.

Jack Sheridan, Coordinator of Government Activities.

We visit the WASHINGTON SALES OFFICE . . .

Washington representation for Sprague Electric started in early 1950 with John P. Sheridan, a desk, telephone, and part-time secretarial services. In the following year, a formal office was opened in downtown Washington with James C. P. Long joining to assist with the increasing Department of Defense activity and the many electronic industrial firms springing up in Washington suburbs. The office has since moved to its present location at 2321 Wisconsin Avenue, N. W., with a current staff of five engineers, one sales administrator and two secretaries.

Office responsibilities are now handled jointly by Mr. Long as Commercial Manager and Mr. Sheridan as Coordinator of Government Activities. Assisting Mr. Long on Commercial accounts is H. Dana Grindy, Sales Engineer. They are responsible for industrial sales in Maryland and Virginia, with accounts in Tennessee and North Carolina. Charles T. Lempke aids Mr. Sheridan as Government Liaison Engineer and they are primarily responsible for our efforts with the many headquarters agencies of the Department of Defense together with NASA and the other non-defense agencies. These include almost a dozen large laboratories in such out-of-town locations as New York, Philadelphia, Dover, New Jersey, Johnsville, Pennsylvania, Langley, Virginia, and Huntsville, Alabama, all with headquarters in Washington.

James C. P. Long, joined Sprague Electric in June 1951, a year after the Washington Office was organized, and has worked in the Washington area during his entire tenure with the Company. For a while, Jim was Product Specialist for piezo ceramics. After graduating from Grove City College, Grove City, Pennsylvania with a B.S. degree, Jim served as a Commissioned Officer in the U. S. Navy during World War II. After the war, he was employed as Components Engineer for the Bureau of Aeronautics, U. S. Navy until he left to join Sprague Electric.

Jack Sheridan's years in electronics began with a "Ham" license in 1934 when a senior in high school.

Conference time at the Washington Office.

Ted Lempke talks with a customer.

Following graduation from City College, New York in 1941 he joined the General Electric Company at Bridgeport, Connecticut until commissioned as a Naval Reserve Ensign in 1942. During the war years, he was decorated by the Secretary of Navy for his development of electronic training devices and special communications equipment. In 1946 he joined the engineering staff at the Naval Research Laboratory in Washington and the Office of Naval Research, resigning from Government service in early 1950 to join Sprague Electric.

After graduation from the University of Maryland in 1943, with a B.S. in physics and chemistry, Charles T. Lempke was a Physicist at the Bureau of Standards before going on active duty in the Air Force. Upon completion of a tour of duty with a Bomber Wing in Italy as an Electronic Countermeasures Officer, he finished his service as an instructor in Radar Navigation.

Prior to joining Sprague Electric in 1953 as a Field Engineer in the Washington Office, Mr. Lempke was employed at the Naval Research Laboratory as an Electronic Scientist for five years and for three years in the Navy Bureau of Ships. During the time he worked as Electronic Engineer in the Electronics Design and Development Division of BuShips, Mr. Lempke obtained his license in the District of Columbia as a Professional Electrical and Electronics Engineer.

Dana Grindy, Sales Engineer, has been with Sprague Electric since 1951, serving in both the Los Angeles and Chicago Sales Offices before coming to Washington. He has a Bachelor of Science degree from Washington and Lee University in Virginia, and served in the U. S. Navy during World War II.

Miles X. Wickman joined Sprague Electric's subsidiary, Dynacor, Inc., in 1958 after graduating a BSEE from the University of Maryland. He was transferred to Sprague Electric in 1961 while working in the Los Angeles office as a Field Engineer, then transferred to the Washington Office in the Spring of 1962 as a Product Specialist for the Special Components Division.

Bruce A. Patterson, Sales Administrator, is the youngest member of the Washington team. Prior to joining Sprague Electric in 1960, he worked for several years with wholesale parts distributors and worked both in Government communications and the commercial broadcast industry in Albuquerque, New Mexico. Bruce is taking courses with the National Radio Institute in Washington, D. C.

Miles X. Wickman reviews a Special Components design.

NEW PLANT OPENED AT ANNAPOLIS JUNCTION, MARYLAND

To further strengthen Sprague Electric's activities in the Nation's Capitol, the Filter Division's newest facility, the Washington Development Center, was opened this month. The 6,000 square foot building is located almost equidistant between metropolitan centers of Washington and Baltimore with convenient access to the many governmental agencies and private firms in the area.

The new operation will provide increased engineering assistance to East Coast customers on Filter Division products and services. Particular emphasis will be placed on investigations in accordance with new, classified specifications as well as increased efforts in the general field of Electromagnetic Compatibility testing.

Present plans call for approxinately 35 engineering, technical and clerical personnel by early 1965.

Sylvia Schecter and Mary Shea, Washington Office secretarys, discuss incoming correspondence.

CHRISTMAS SAFETY CAROL

When decking the halls
With boughs of holly
Fa la la la la la la la la

Do it safely without folly
Fa la la la la la la la la

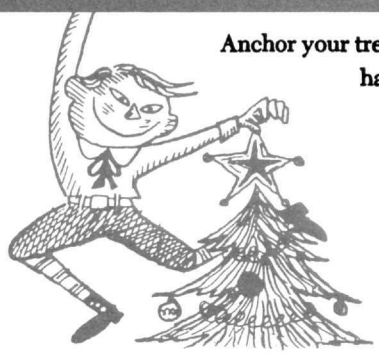
Take precautions
Follow reason
Fa la la la la la la la la

Have a merry Christmas season!
Fa la la la la la la la la

The North Pole
Safety Council

RULE 1: ABOUT TREES & DECORATIONS

- A moist tree is less of a fire hazard - water it.
- Turn out tree lights and other temporary wiring whenever you leave them.
- Check all wiring - tree lights, wreaths and other ornaments. Inspect and fix electric cords *before* you put them in service.
- Never put a penny behind a blown fuse.
- Use a ladder - with someone to steady it - when trimming your tree.



Anchor your tree securely so little hands won't bring it crashing down.

- Don't overload with extension cords. Not more than three cords from one double outlet.

- Never use lighted candles on your tree.
- Always place candle decorations away from curtains, drapes and other flammable materials.

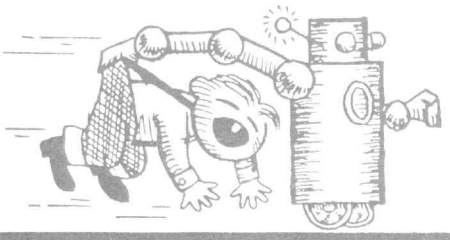
AVOID using ornaments with sharp points

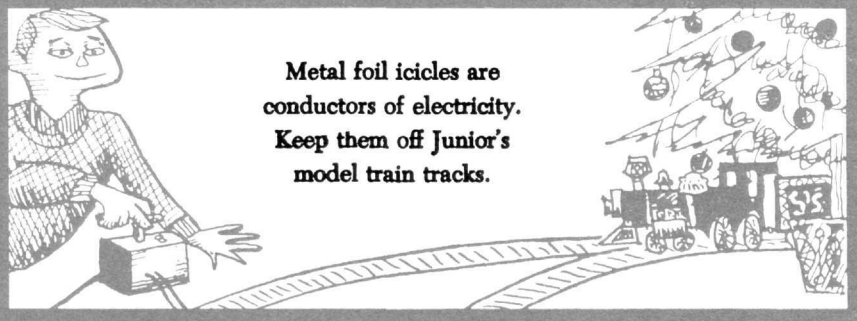
RULE 2:

ABOUT TOYS & CHILDREN

HELP
keep children's toys off the stairs, out of doorways and other busy places.

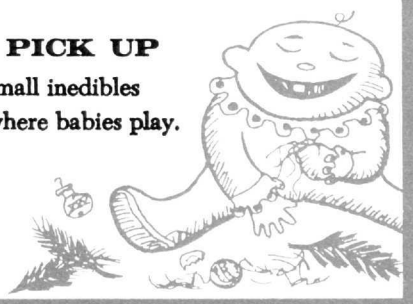
KEEP
a watchful eye on mechanical gifts.



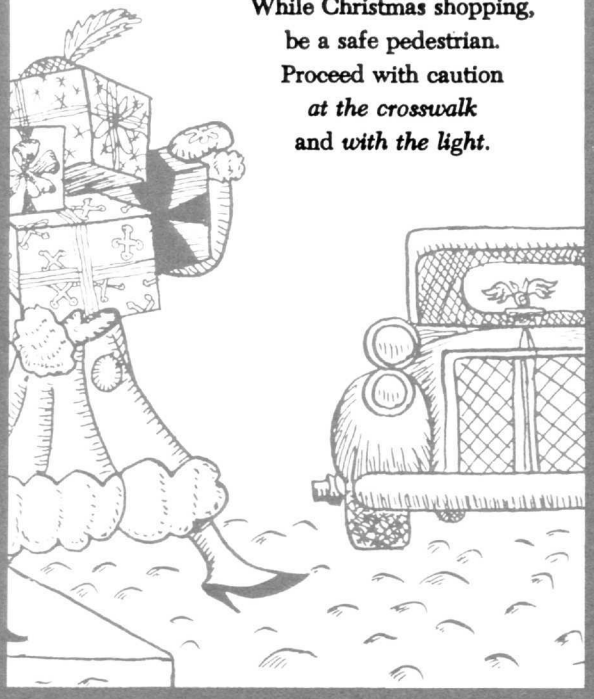


Metal foil icicles are conductors of electricity. Keep them off Junior's model train tracks.

PICK UP
small inedibles where babies play.

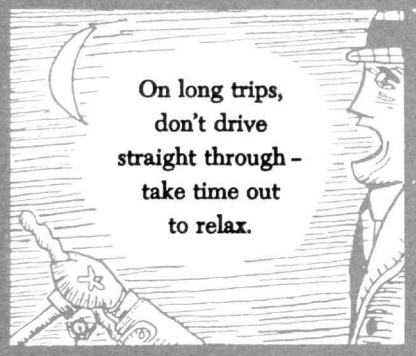


RULE 3: ABOUT DRIVERS & PEDESTRIANS



While Christmas shopping, be a safe pedestrian. Proceed with caution *at the crosswalk* and *with the light.*

Don't
take a chance on ice. Better to arrive a day later than spend Christmas in the hospital.



On long trips, don't drive straight through – take time out to relax.

Let someone else drive your car if the Christmas 'spirits' move you.

"I must go down to the seas again,
to the lonely sea and the sky,
And all I ask is a tall ship
and a star to steer her by."

John Masefield
"Sea Fever"

AND A STAR TO STEER HER BY

In the complex maze of today's business world, profits are both the goal and the compass. A company is a group of people voluntarily banded together to achieve a profit – whether a personal profit in the form of wages, or a company profit to reward its owners and pay its stockholders a personal profit for funds invested. Profit is the measure of how well each has done in producing a product or a service that other people will buy for more than it costs to produce. Profits are the measures that management people use to determine how much – of what – should be produced for whom. When a firm serves the public well, it is rewarded with profit, and it is in this way that the public guides managers in their efforts. Profits are therefore both the star business aspires to and the compass that tells it when it's on course. It's a lot more reliable than guesswork by a commissar or a workout on the ouija board.

Profit is *proof* that you're on course.

WHAT IS YOUR JOB?

In the words of the old saying
"are you laying brick, or building a cathedral?"

Pride of accomplishment – satisfaction in a job well done – the knowledge that you have done your very best! Do you have these feelings as you leave work each day? Or do you consider yourself just a small cog in a vast machine where your efforts are completely insignificant?

From the early days of the Industrial Revolution there have been strong voices declaring that man no longer needed to use his brain, he was dominated by a machine. The harsh facts prove a different theory. Every machine requires a human operator – a thinking machine. It can do nothing that has not been directed by a human operator, and each improvement in technology and design has been conceived by an interested employe.

It is far easier to merely perform a routine duty in a more or less methodical fashion than it is to feel a sense of responsibility. After all who will ever really know whether or not you give that extra measure of devotion, but in your own mind would you be willing to sign your name to each piece of work you perform? Years ago each craftsman proudly stamped his sign on each product. He was happy to proclaim to the world that this was his accomplishment.

Every politician knows that anyone who promises *job security* finds an interested audience for we all want to feel secure in our jobs. However, the simple fact is that no one can give you job security – not a government agency and not your employer.

The objective facts are these:

- You are employed because you have a skill which an employer can use and is willing to pay for.

- Sprague Electric stays in business by producing goods and services which customers are willing to buy.

- The company and the jobs it provides can continue in existence only so long as its products can be sold to customers at a fair profit.

The worst thing that could happen to a working man is to work for a company that isn't making any money. Such a company is not growing and cannot provide individuals with the security and opportunities they would like to have. A profitable and efficient company is the only one that can be humanitarian.

What is your job? Your job is to take a sincere interest in Sprague Electric and do everything in your power to make its operations successful.

THE FOURTH WISE MAN

The story has been told by many in glowing and eloquent terms. The stable, the crowded inn, the bright star on high and the Three Wise Men who came with frankincense and myrrh. It is the story that profoundly moved the world and has changed the outlook and action of man for almost 2,000 years.

But I have often wondered if perhaps in that crowded town of Bethlehem, where there were no quarters and thousands roamed about, whether or not there might have been a fourth wise man.

The three who came to pay homage to the new baby, born King of the Jews, had crossed two continents, had borne precious gifts befitting the world's most important eve, and they were immortalized in the pages of the Bible, in the minds of men and in fable and folklore of countless peoples and cultures. Their notoriety was earned by the uniqueness of their achievement and their refusal to be turned back at many a stop.

But supposing there had been a fourth wise man in that town that day. One perhaps poorer, or who had come only from Judea or perhaps even Bethlehem itself. It does seem possible that in that crowded spot there could have been one who saw the light, and heard the Babe cry, and looked above to see the angels sing.

If he were there, no one knows of him. No one but God himself. There is no note in history for him, no Hall of Fame, no place at all. But if the tears filled his eyes, and if he fell to his knees in fear and wonderment, as his three brethren did inside – then indeed his place in heaven must be with the other three.

If Christmas brings to each of us no other message than that there might have been a fourth wise man, then we can be content. For it will lead us quickly to realize that we cannot measure our fellow man by his wealth, or fame, or place in history. For we may not know of his good works, or his devotion, or his personal inspiration. We know not his name, or his color, or his creed. We cannot but look at each of our fellow men and say, there, perhaps, is the fourth wise man, chosen not for his earthly talents or possessions, but in the wondrous ways of the Lord – for what is deep inside him.

The Ideas We Live By

Dedication is a maintenance man
out where the job is,
keeping things going.
It's a typist checking a word
in a dictionary,
making sure she's right.
It's a person doing the best
he can, even when pressures
and problems get in the way.
Dedication means sticking with a job
until it's done the way
it should be done.
It means finding a way.
It means succeeding.
Dedication is a demanding master.
For it calls upon you to
try, and try again.
It calls upon you to go on to the end.
It calls upon you to give,
not some of your best,
but all of your best.
Not some of the time,
but all of the time.

SPRAGUE®
THE MARK OF RELIABILITY